SECTION 02650

EXISTING SITE UTILITIES

PART 1 - GENERAL

0.1 DESCRIPTION OF WORK

A. Work Included: This Section specifies the maintenance, support, protection, relocation, reconstruction and adjustment-to-grade, restoration, and abandonment of existing utilities affected by the construction work.

B. For the purpose of this Section, utility means any public or private service, such as electric light and power systems; gas distribution systems; telephone, telegraph, cable television and other communication services; water distribution; storm drain and sanitary sewer services; police and fire communication systems; street lighting and traffic signs and signals; parking meters; and steam distribution systems.

0.2 GENERAL

A. The location of existing underground pipes, cables, conduits, and structures as shown have been collected from the best available sources and the Authority together with its agents does not imply or guarantee the data and information in connection with the underground pipes, cables, conduits, structures and other parts as to their completeness nor their locations indicated. The Contractor shall contact utility owners and request marking location of all their lines in the work areas. The Contractor shall assume there are existing water, gas, electric and other utility connections to every building and structure, whether they appear on the Drawings or not. Any expense and/or damage to these shall be the responsibility of the Contractor.

B. Foundations and lines for services, police and fire alarm boxes, street and pedestrian lights, and traffic signals may not be shown on the Drawings. The appropriate utility companies and/or agencies shall be contacted and consulted for locations of the above.

C. All utility companies, public and private, shall be notified, including those in control of utilities not shown on the Drawings (see Chapter 370, Acts of 1963, Massachusetts) prior to designing, excavating, blasting, installing, backfilling, grading, or restoring pavement. The Contractor shall Premark the area of excavation or work and notify the Dig Safe Center (1-888-DIG-SAFE) at least three business days prior to any excavation or work. In addition, notification shall be given to all affected private and/or public utilities to permit street marking of their lines.

D. Some unknown utilities may exist in the areas to be excavated. The Contractor shall take the necessary precautions when excavated in areas of potential utility conflict. Precautions may include, but are not limited to soil vacuum excavation, hand digging, or other non-destructive means. The Contractor shall further be prepared to pre-excavate or pre-trench to locate potential utility conflicts prior to performing such activities as, but not limited to jacking, tunneling, installing temporary excavation support, etc.

E. Interruptions of utilities shall not be permitted without written consent of the utility owner. The Contractor shall coordinate with all utilities and provide all temporary utilities and connections to avoid interruptions.

0.3 SUBMITTALS

A. Submit working drawings and, if applicable, shop drawings showing the details, procedures, and scheduling for performance of the existing utility work. Show actual location of existing utility facilities; interferences which these facilities present to the new work; location of settlement markers; method proposed to proceed with the construction; details of proposed support systems; and, if applicable, method of testing and procedure for restoration.

B. Submit written evidence of affected utility owners' approval of the details, procedure, and scheduling.

C. Provide written notice two weeks in advance of the intended date to commence operations, to affected utility owners and parties having surface, subsurface or overhead structures in the construction area. Furnish the Engineer copies of all notices.

D. If a settlement or movement monitoring system is required, submit copies of readings to the Engineer and affected utility owner within 24 hours of the reading.

E. Submit to the Engineer, certifications from the respective suppliers that the products to be incorporated in the work are in conformance with applicable requirements.

0.4 NOTIFICATION

A. Notify the appropriate utility agencies and the Engineer at least 48 hours prior to starting any work involving or adjacent to utility service facilities.

B. Where an existing utility facility is encountered that is not indicated or that is determined to be a different utility facility than that indicated, promptly notify the Authority. The Contractor is responsible for determining the owner of the facility and the disposition of the facility.

PART 2 - PRODUCTS

0.1 GENERAL

A. Products and materials shall be as specified in the Construction Specifications.

0.2 SALVAGE MATERIAL

A. Reuse materials designated to be salvaged, provided they are inspected and approved by the respective utility owner and the Engineer. Salvaged material not designated for reuse or returned to the owner shall become the property of the Contractor.

B. Maintain and have available for inspection by the Engineer a detailed record, including signed vouchers and receipts, of new and salvaged materials received from, used, or returned to the various utility owners.

PART 3 - EXECUTION

0.1 GENERAL

A. Conform to the specifications and standard practices of the affected utility owners. Coordinate with utility owners, which work shall be done by the Contractor and which work shall be done by utility owner at Contractor's expense. Ensure continuity of all existing utility services to all users except when the utility owner determines that temporary interruption is required.

B. Unless otherwise indicated or authorized in writing by the Engineer, maintain all utility facilities complete in place.

C. Abandoned Facilities

1. Demolish and remove abandoned utility facilities in conflict with work.
2. Do not undertake demolition or removal of the service until written approval for such work has been obtained from the utility owner.
3. When abandoned facilities are indicated to be left in place, plug, or cap or bulkhead the ends of conduits and pipes, as indicated. Pipe or conduit greater than 15-in in diameter shall be completely filled with Controlled Density Fill. Remove abandoned utility manholes, junction boxes, and similar structures to a minimum depth of two feet below finish grade and fill the remaining void with sand or select fill, as specified in Section 02300 - EARTHWORK, after the plugging, or capping, or bulkheading of conduits and pipes has been completed. Puncture or break the bottom slabs of manholes and similar structures to provide drainage. Backfill and compact excavations resulting from removal of utility facilities, as required.

4. Bulkheads for pipes greater than 15-in in diameter shall be constructed of solid concrete masonry bricks or solid concrete masonry blocks with full mortar joints. The bulkhead shall be watertight. Recess the bulkhead 1/2-in and seal with non-shrink grout.

D. Provide, install, and maintain all temporary facilities required to provide interim utility service when a utility facility is to be relocated and when a utility facility to be replaced is abandoned prior to replacement.

E. Where an existing utility facility is encountered which is not indicated, or which is determined to be a different utility service than that indicated, promptly notify the Engineer who will assist in determining the owner of the facility and the disposition of the facility.

F. If, upon exposure, the condition or location of a facility to be supported complete-in-place is found by the Engineer to be unsafe for support or for maintenance of service, replace or reconstruct the facility as required, with prior approval of the Engineer and the utility owner.

0.2 SETTLEMENT OR MOVEMENT

A. Provide suitable settlement or movement monitoring systems where indicated or required by the affected utility owner.

B. In case of settlement or other movement which might cause damage, take immediate remedial measures to correct the conditions and damages caused by the settlement.

0.3 RECONSTRUCTION AND ADJUSTMENT-TO-GRADE

A. Relay, reset, or otherwise reconstruct miscellaneous structures and facilities as indicated.

B. Adjust-to-grade manholes and inlets as indicated, by raising or lowering the upper portion thereof.

C. Backfill under utilities supported or exposed using controlled density fill to allow for the proper support and compaction under the utility. Contractor shall coordinate with the utility owner to determine the acceptability of the use of controlled density fill and shall work with the Owner to develop alternate means to ensure the proper backfill and compaction under the utility.

0.4 AS-BUILT UTILITY LOCATION AND CONDITION SURVEY

A. For each new or relocated utility installed, including those installed or relocated by others in the Project Area, perform an as-built location survey by coordinates prior to backfilling the excavation.

B. The survey data shall be obtained by Global Positioning Survey (GPS) and certified by a Professional Land Surveyor registered in Massachusetts.

C. A complete digital base plan shall be provided in AutoCAD DWG format Release 2000i or later on a Compact Disk (CD), properly referenced to the coordinate system established in the contract. The following standards shall be applicable:

1. Text: Text shall be drawn using a STYLE of "L100-XX" (where XX refers to the plotted scale) and a font file of "SIMPLEX" as defined in the AutoCAD survey template provided by the Engineer. The style shall be defined as a "fixed height" style, and have a height of 0.10 times the drawing plotted scale. (i.e. 4.0 for 40 scale plan, 2.0 for 20 scale etc.).
2. Precision and Accuracy:

    a. Horizontal Survey:

        1) Precision: Horizontal control and surveyed points shall maintain a minimum precision of 1:10,000.
        2) Accuracy: No more than 10% of the survey points shall be in error by more than 1/100 inch or 0.25 mm when viewed at the requested scale.

    b. Vertical Survey:

        1) Precision: Vertical Control shall have a maximum error of closure no greater than .075 feet or .02 meters.
        2) Accuracy: No more than 10% of elevations when interpolated from a Surface shall be in error of more than 1/2 a contour interval.

3. Surface Data: The data format shall conform to Autodesk Land Development Desktop Project files. If the Contractor uses a different software product to create a surface, then the surface must be represented as a TIN (Triangulated Irregular Network) of 3D lines on a separate, distinct layer within the AutoCAD drawing file. 3D faces or 2 dimensional lines are NOT acceptable.

PART 4 - MEASUREMENT AND PAYMENT

0.1 MEASUREMENT

A. Work specified in this Section will be measured on a linear foot basis for each affected utility, as specified in the Construction Specifications.

0.2 PAYMENT

A. Payment for the work specified in this Section will be made at the Contract unit prices as indicated above.

0.3 PAYMENT ITEMS

ITEM NO.	DESCRIPTION	UNIT
0211.465	WESTERN UNION UTILITY RELOCATION	LF
0211.466	PROTECTION AND RELOCATION OF EXISTING UTILITIES - BWSC	LF
0211.467	TELEPHONE RELOCATION	LF

END OF SECTION

NOTES TO THE DESIGNER

A. Any request to modify or waive the specification requirements listed below must be approved in writing by the MBTA's Director of Design:

1. None